

REMARKS

Summary

Claims 38-55 are pending. Claim 40 is amended and claims 54 and 55 are added herein. No new matter is added.

103(a) Rejections of Claims 38-46, 48, and 49

Claims 38-46, 48, and 49 are rejected under 35 USC 103(a) as being unpatentable over US Patent No. 5,141,044 to Hying et al. (Hying) in view of US Patent No. 4,519,474 to Iseli et al. (Iseli). Claim 47 is rejected under 35 USC 103(a) as being unpatentable over Hying, in view of Iseli, and further in view of US Patent No. 5,399,851 to Strand (Strand). Claims 50-53 are rejected under 35 USC 103(a) as being unpatentable over Hying in view of Iseli and further in view of US Patent No. 3,292,685 to Clark (Clark). Applicant respectfully traverses the rejections in light of the remarks below.

Claim 38

Claim 38, in part, recites a stabilizing element configured to exert a first restoring force to counteract a deformation of the stabilizing element in a direction opposite to a closing direction when each of the at least one closing element is in the closed position and to exert a second restoring force to counteract a deformation of the stabilizing element in a direction transverse to each of the at least one closing element when each of the at least one closing element is in the closed position, the first restoring force being less than said second restoring force. It is unclear which of Hying or Iseli is being cited, but Applicant submits that neither reference provides such a teaching.

Hying provides no indication of directionality to restoring forces of the stabilizing element. By contrast, Hying proposes a roll-up door having peculiar breakaway shafts to give the roll-up door the ability to react to an impact against the curtain or bottom bar by yielding to the force without damaging parts and which may be quickly returned to an operating condition.

Iseli also does not recite any such directionality in the specification. Any directionality in Iseli would have to be extracted from the figures, and, if so, such directionality appears opposite of that described in claim 38, as further detailed below.

Hyng and Iseli do not teach or suggest a stabilizing element having at least one leaf spring having primary surfaces oriented perpendicularly to the closing direction. Iseli is cited for teaching the use of a leaf spring, but the leaf spring in Iseli is oriented differently, as shown in Figures 3 and 4, and thus would provide greater reinforcement in the closing direction. Such a configuration is opposite to that recited in claim 38, and as such, the configuration of Iseli does not provide for the greater lateral stability coupled with elimination of compression damage/injuries to objects or persons present in the entry. The configuration of Iseli would instead appear to match more closely with that of Hyng in providing a type of breakaway orientation in the lateral direction.

According to the description of Figures 3 and 4 (Column 3, lines 18 to 35), Iseli shows a structure used as a safety bumper for driverless transport vehicles. In these types of safety bumpers, the leaf spring should be oriented vertically, i.e. having its primary surface oriented in a vertical plane. However, it is not apparent how a person of ordinary skill in the art seeking solutions to problems specific to roll-up doors would draw from the teaching of Iseli that a leaf spring oriented as recited in claim 38 may provide the desired solution.

Thus, certain benefits provided by the current claimed invention, notably avoidance of damages or injuries to objects/persons while simultaneously providing sufficient stability, are thus not addressed or provided by Hyng or Iseli. Further, Hyng and Iseli fail to provide any teaching or suggestion to use a leaf spring oriented as specified in claim 38 within a stabilizing element of a roll-up door. For these reasons Hyng and Iseli are incapable of rendering obvious the presently claimed invention.

Furthermore, Strand and Clark, individually or in combination, fail to provide any teaching or suggestion to overcome the deficiencies of Hyng and Iseli. For all the above reasons, claim 38 is patentably distinguished over the cited references.

Claims 39-54

Claims 39-54 depend directly or indirectly on claim 38, incorporating the features of claim 38, and thus are patentable over the cited references for at least the reasons discussed above.

Claim 41

Further, with respect to claim 41, none of the cited references teach the use of two or more leaf springs oriented in parallel and being spatially separated. Such a configuration has a small impact on the restoring force in the closing direction but provides a large restoring force perpendicular to the closing direction. By separating the leaf springs spatially, the lateral forces may be distributed and the possibility of rotation or movement of part of the stabilizing element about a single leaf spring is largely reduced or eliminated.

Claims 49 and 53

Additionally, with respect to claims 49 and 53, the claims provide for at least a lower edge of the at least one closing element to include a web-like hanging element coupled to the stabilizing element. According to the present application, embodiments of the invention may relate to problems specific to roll-up doors having a closing element in the form of a web-like hanging element. According to the application, basically two different types of roll-up doors are known, where the first type thereof comprises a closing element consisting of multiple slats connected to one another in an articulating manner to thereby provide satisfying stability. On the other hand, in cases where a rapid opening and closing motion is more important than stability, closing elements in the form of web-like hanging elements, for example realized by PVC-foils, may be used. These types of closing elements require a stabilizing element at the lower edge thereof to thereby render it sufficiently stable, such as under wind loads. Those stabilizing elements may present a serious risk in cases where the stabilizing element impinges on persons or objects during the closing movement.

According to the application, the problems related to the use of closing elements in the form of web-like hanging elements may be solved by the use of a leaf spring as a stabilizing element, having its primary surface oriented perpendicularly to the closing direction to thereby provide good protection for persons or objects, while, on the other hand, preserving stability, for example, under wind loads.

These specific problems are not addressed in the cited art. To the contrary, according to Hying, the lower edge of a closing element of a roll-up door should be provided with sufficient flexibility in cases where a vehicle impinges on the closing element during the closing or opening movement in a direction perpendicular to the main plane of a closing element, which is not related to the problems addressed in the current application, namely lateral stability in combination with flexibility in the closing direction. Accordingly, Hying fails to anticipate or suggest the use of a leaf spring having the peculiar orientation as specified in claim 38, in particular as embodied in a door having a web-like hanging element, as recited in claims 49 and 53. Further, Iseli broadly relates to safety beadings or ledges, but does not address in any way the specific problems of doors having a closing element in the form of a web-like hanging element. Indeed, Iseli fails to teach or suggest the use of roll-up doors of this type.

New Claim 54

With respect to new claim 54, the configuration of the stabilizing element and the leaf spring are aligned to provide coincident restoring forces (as those forces are recited in claim 38). By having a stabilizing element that is thicker in a direction perpendicular to the closing direction, the lateral restoring force of the stabilizing element is aligned with that of the integrated leaf spring. Support for such a feature may be found at page 15, lines 16-19.

New Claim 55

In accordance with the remarks above, among other recited features, new claim 55 incorporates a web-like hanging element with the features of a stabilizing element.

Conclusion

In view of the foregoing, Applicant respectfully submits that claims 38-55 are in condition for allowance, and early issuance of the Notice of Allowance is respectfully requested.

If the Examiner has any questions, he is invited to contact the undersigned at (503) 796-2844. Please charge any shortages and credit any overages to Deposit Account No. 500393.

Respectfully submitted,
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